



Contribution ID: 27

Type: **not specified**

Tilted TBPS Ring Mechanics for CMS Phase 2 Upgrade Tracker

Thursday 9 June 2022 08:30 (20 minutes)

Tilted Tracker Barrel with Pixel-Strip modules (Tilted TBPS) will be one of the sub-detectors of the future CMS Tracker, due for installation in the LHC Long-shutdown 3. The detector modules of this device are tilted to point towards the LHC beam interaction point. This module arrangement reduces the number of modules needed, but complicates the detector's mechanical construction. The key elements for solving this challenge are the Tilted TBPS "Rings" that provide the required positioning and alignment of the modules. 72 Rings will be necessary to guarantee particle track hermeticity on the three layers of the TBPS.

The Ring production has started recently, with the first pre-production unit completed and measured. This presentation will focus on the Ring manufacture and quality control. Additionally, design choices and specific challenges related to the production of the needed carbon-fibre polymer and metal matrix composite parts, cooling pipes and assembly tooling will be presented.

Author: ROSE, Pierre (CERN)

Co-authors: ABBANEO, Duccio (CERN); BATISTA LOPES, Joao (CERN); BOYER, Francois (CERN); Mr CICHY, Kamil (Cracow University of Technology); DAGUIN, Jerome (CERN); DIAMANTIS, Alexandros (CERN); FRENCH, Thomas (CERN); ONNELA, Antti (CERN); PEREA ALBELA, Fernando (University of Cadiz (ES)); PEREZ, Alexandre (CERN); PEREZ GOMEZ, Francisco (CERN); PIAZZA, Quentin Olivier (CERN); POSTEMA, Hans (Cornell University (US)); ROBIN, Gregoire Victor (CERN); TAVARES REGO, Ricardo (CERN); VRANCIANU, Remus-Gheorghita (CERN)

Presenter: ROSE, Pierre (CERN)